

Transportation Engineer (Civil)

California State Personnel Board Specification

- **Schematic Code:** GH59
- **Class Code:** 3135
- **Established:** 06/13/1989
- **Revised:** 04/21/1992
- **Title Changed:** 04/21/1992

Definition

This is the entry, first working, and journey level of professional engineering work in Caltrans. At the journey level and with registration may be in a responsible charge capacity. Under the direction of a registered engineer, incumbents perform a wide variety of professional engineering work in either an office or field setting; as incumbents progress in experience they will be assigned more difficult work and may function as a lead person over the activities of various engineering and technical personnel; and do other related work.

Typical Tasks

A Transportation Engineer (Civil) performs engineering work involving plans, designs, details and maintenance of transportation systems, in whole or in part, that may include land, rail, freeways, roads, airports, ramps, hydraulics, sanitary facilities, bridges, nonstandard major structures or transportation-related buildings and other structures; makes layouts, assembles specifications; reviews or assists in reviewing project proposals, plans, and specifications prepared by others; acts as resident engineer on small-to medium- sized construction projects; works up special provisions and contract estimates; keeps or assists in keeping the necessary records pertaining to construction progress, job expenditures, budget programs, and work order balances; confers with contractors regarding compliance with plans and quality of work and construction activity; selects and/or uses computer-based processes to compile engineering data, horizontal and vertical alignments and curve computations; develops or assists in the development or maintenance of transportation-related state-of-the-art computer programs and procedures; makes or revises maps, charts and diagrams; uses project management systems to budget personnel and set milestones for transportation projects; makes field investigations of and for laboratory analysis of materials being used in construction transportation and public works research projects; makes controlled tests and checks performance of construction materials, soils, aggregates, cement, asphalt, concrete, and other materials; on construction projects, analyzes and approves or assists in analyzing and approving materials incorporated in bridges, nonstandard major structures or transportation-related buildings; evaluates or assists in evaluating damage for all types of transportation facilities including bridges and other nonstandard major structures; makes in- plant investigations and recommendations about materials, plant design and operations; may use underwater diving equipment to make underwater quality control and structure investigations; performs transportation operational, traffic operations, planning or maintenance engineering tasks; prepares and presents information to the public about all types of transportation engineering matters; tests for and prepares environmental reports, assessment reports of transportation surveys, investigations and analysis statements, and air and water quality reports; assists a registered engineer in performing professional engineering work; may lead other engineering and technical personnel.

Minimum Qualifications

EITHER I

Graduation from a four-year curriculum in civil engineering accredited by the Accreditation Board for Engineering Technology. (Registration as a senior in such a curriculum will admit an applicant to the competition, but she/he must produce evidence of graduation before she/he will be considered eligible for appointment.) (Possession of a valid certificate as an Engineer-in- Training issued by the California State Board of Registration for Professional Engineers and Land Surveyors, or issued by another jurisdiction and accepted

by the California Board in lieu of the first division of the examination as an engineer may be substituted for the required education.)

OR II

Possession of equivalent qualifications may be demonstrated by graduation from an engineering curriculum which includes the basic engineering courses normally covered in a standard four-year engineering curriculum, and by qualifying in a written examination covering basic engineering. (Registration as a senior in such a curriculum will admit an applicant to the qualifying examination, but she/he must produce evidence of graduation before she/he will be considered eligible for appointment.)

OR III

A master's or doctorate degree in a civil engineering curriculum from a college or university that has a baccalaureate degree program in a civil engineering curriculum which is accredited by the Accreditation Board of Engineering Technology (ABET). (Registration as a candidate in such a curriculum will admit an applicant to the competition but she/he must produce evidence of graduation before she/he will be considered eligible for appointment.)

Knowledge and Abilities

Knowledge of: Basic principles of physics, chemistry, and mathematics as applied to civil engineering; engineering surveying; hydrology and hydraulics; stress analysis; mechanics; strength of materials; properties and uses of engineering construction materials; methods and equipment of engineering construction; engineering economics.

Ability to: Do simple mapping and drafting and make neat and accurate computations and engineering notes; prepare reports; establish and maintain friendly and cooperative relations with those contacted in the course of the work; communicate effectively.

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